ATTACHMENT B

REMARKS

By the present amendment, Claims 1 and 9 have been amended in a manner as suggested by the Examiner to clearly show that these claims are directed to subject matter that is not disclosed or suggested in the prior art. In addition, Applicants have now provided side-by-side data of antibodies that can bind to the subregions of the collagen binding protein which shows that antibodies to larger regions do not inherently bind to antibodies from lesser included regions, and thus that the claimed antibody to a specific subregion differs from antibodies to the full length collagen binding proteins of the prior art. In light of the present amendments, and for the reasons as explained in more detail below, all prior rejections are now overcome and this application has been placed in condition for allowance.

The present invention as exemplified in amended Claims 1 and 9 and the claims dependent therefrom is directed to an antibody that binds to the specific M31 subregion of the collagen binding domain of the collagen binding protein of *Staphylococcus aureus*, and this antibody has not previously been disclosed or suggested in any prior art reference. In accordance with the Examiner's suggestions, Applicants have amended the language of the claims to indicate that the isolated antibody binds to the specific M31 subregion having the sequence of amino acids 61-343 of the full length collagen binding protein, and as the Examiner has recognized, the prior art does not disclose or suggest an antibody to this specific subregion, only antibodies to the complete collagen binding protein.

In the Advisory Action, there was only one remaining rejection, and this was the rejection under 35 U.S.C. §102(b) on the basis of the Patti et al. 1992 Journal of

Biological Chemistry article which referred entirely to the full length collagen binding protein of *S. aureus* and an antibody generated thereto, but which did not disclose or suggest antibodies to any specific subregion of the collagen binding domain of said protein. In the Advisory Action, the Examiner once again recognized that the 1992 Patti reference only disclosed antibodies to the full-length collagen binding protein and not to any specific subregion such as M31, but held that the prior language of the claims would not distinguish from this reference unless the claims required the antibody to actually bind to the M31 region. Without addressing the Examiner's arguments in this regard, Applicants have now amended the claims so that they are directed to an antibody that actually binds to the specific M31 region, namely amino acids 61-343 of the collagen binding protein of *S. aureus*. Clearly, Applicants were the first to recognize such a region and to generate antibodies to the specific region, and the prior art 1992 Patti article, which relates entirely to the full length protein and which does not disclose or suggest any subregions, much less the specific subregion of the claimed invention, does not disclose or suggest the invention as presently claimed.

Further, as Applicants have previously pointed out, the antibodies which are generated against a full length protein such as the collagen binding protein of *S. aureus* are far different and have different properties that antibodies to a specific subregion, even when that region is included in the full length protein. Indeed, as was pointed out in a prior Declaration, Applicants have received patented claims in the parent case to the present application to antibodies to the subregion M55 on the grounds that antibodies to the M55 subregion were indeed different that antibodies to the full length protein. However, in the Advisory Action, the Examiner indicated that no side-by-side

comparison was available to show that antibodies to a larger region would not inherently bind to a lesser included region.

Applicants have now obtained data that shows that antibodies to larger regions would not be expected to bind to lesser-included regions of a specific protein, In particular, as shown in the attached Appendix, tests conducted with five different antibodies which were generated against and which recognized at least the M55 (50-329) region showed that antibody recognition of an epitope in a larger protein does not ensure that the antibody will also recognize a smaller portion of the same protein. Indeed, almost all of these antibodies did not recognize the lesser included M31 regions, even in two cases where the antibody recognized the full-length collagen binding protein. As the attached Appendix makes clear, antibodies to the specific regions are quite different than antibodies to larger regions including the full length protein, and indeed afford benefits and advantages not found in antibodies to only the full length protein.

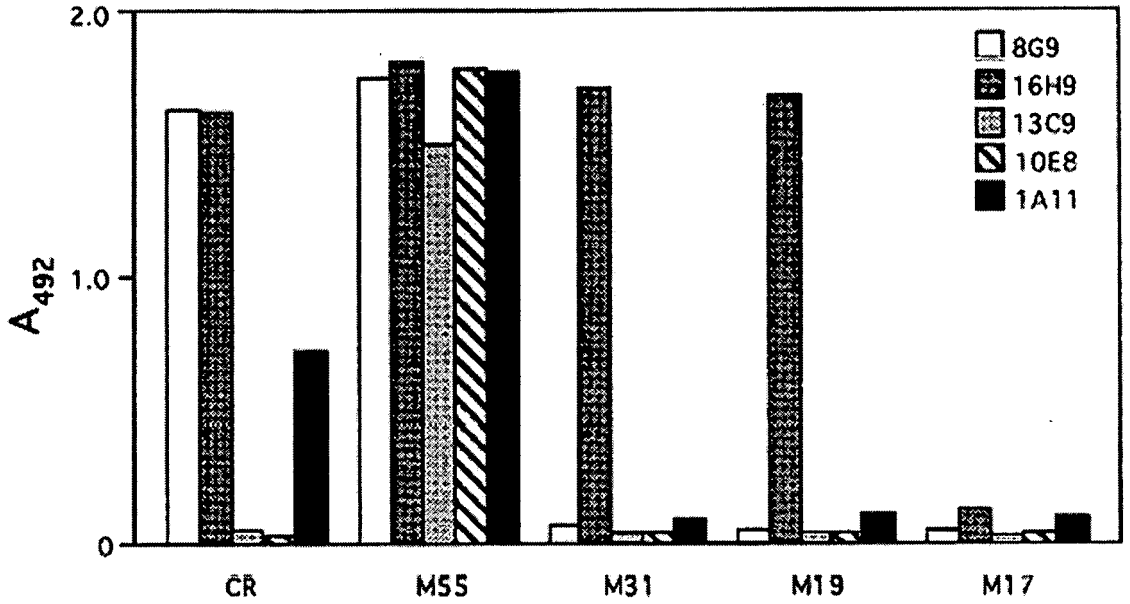
It is thus clear that the isolated subregion antibody as claimed in the present application is not disclosed or suggested in the cited 1992 Patti article, and that indeed the novel and unobvious antibody of the present invention differs in properties from such an antibody and provides benefits and advantages not obtained using antibodies to the full length protein. Accordingly, the Examiner's sole remaining rejection of the claims on the basis of this reference is respectfully traversed and should be withdrawn.

In light of the amendments and arguments as set forth above, and the attachments hereto, Applicants respectfully submit the present application has been placed in condition for allowance, and such action is earnestly solicited.

END OF REMARKS

APPENDIX

ELISA analysis of immobilized recombinant constructs of collagen binding MSCRAMM



Five antibodies were analyzed by ELISA for their ability to bind portions of the collagen binding MSCRAMM. Antibody 16H9 recognized the fragment M55 (CBD 30-529), M31 (CBD 61-343) and M19 (CBD 151-318), but not M17 (151-297). The other four antibodies only recognized the largest portion of the collagen binding MSCRAMM. These data clearly demonstrate that antibody recognition of an epitope in a larger protein does not ensure that the antibody will also recognize a smaller portion of the same protein. CR= native collagen receptor from *S. aureus*.